6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2003-0199; FRL-]

RIN 2060-AL98

Alternative Work Practice to Detect Leaks from Equipment

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule amendment.

SUMMARY: Numerous EPA air pollution standards require specific work practices for equipment leak detection and repair (LDAR). The current work practice requires the use of a monitor which meets required performance specifications. This work practice is based on 25-year-old technology. New technology has been developed which we believe provides equal, or better, environmental protection than that provided by the current work practice. This action proposes a voluntary alternative work practice (AWP) for finding leaking equipment using optical gas imaging.

DATES: Comments. Submit comments on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER], or 30 days after the date of any public hearing, if later.

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL

REGISTER], a public hearing will be held on [INSERT DATE 28 DAYS AFTER DATE OF PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER].

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2003-0199, by one of the following methods:

- www.regulations.gov: Follow the on-line instructions for submitting comments.
- E-mail: a-and-r-docket@epa.gov
- Fax: (202) 566-1741
- Mail: Air Docket, EPA, Mailcode: 6102T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460. Please include a total of two copies.
- Hand Delivery: EPA, 1301 Constitution Avenue, NW, Room B102, Washington, DC 20460. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2003-0199. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by law. Do

not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or e-mail. The website www.regulations.gov is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through www.regulations.gov, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm.

Docket. All documents in the docket are listed in www.regulations.gov. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by law. Certain other material, such as copyrighted material, is not placed

on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy at the Air and Radiation Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742.

Public Hearing. If a public hearing is held, it will begin at 10:00 a.m. and will be held at the EPA facility complex in Research Triangle Park, North Carolina, or at an alternate facility nearby. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held must contact Mr. David Markwordt; Coatings and Chemicals Group; Sector Policies and Programs Division; EPA; Research Triangle Park, NC 27711; telephone (919) 541-0837.

FOR FURTHER INFORMATION CONTACT: For additional information on the proposed rule amendment, review the reports listed in the SUPPLEMENTARY INFORMATION section.

General and technical information. Mr. David Markwordt, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Coatings and Chemicals Group (C439-03), Environmental Protection Agency,

Research Triangle Park, North Carolina 27711, telephone (919) 541-0837, facsimile number (919) 541-0942, electronic mail (e-mail) address: "markwordt.david@epa.gov."

SUPPLEMENTARY INFORMATION:

Regulated Entities. The regulated categories and entities affected by the proposed rule amendment include, but are not limited to:

Category	NAICS*	Examples of regulated entities
Industry....	325..... 324.....	Chemical manufacturers Petroleum refineries, and manufacturers of coal products

* North American Information Classification System

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by the national emission standards. To determine whether your facility would be affected by the national emission standards, you should examine the applicability criteria in 40 CFR parts 60, 61, 63 and 65, including, but not limited to: part 60, subparts A, Kb, VV, XX, DDD, GGG, KKK, QQQ, and WWW; part 61, subparts F, L, V, BB, and FF; part 63, subparts G, H, I, R, S, U, Y, CC, DD, EE, GG, HH, OO, PP, QQ, SS, TT, UU, VV, YY, GGG, HHH, III, JJJ, MMM, OOO, VVV, FFFF, and GGGGG; and part 65, subparts A, F, and

G. If you have any questions regarding the applicability of the national emission standards to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of today's proposed rule amendment will also be available on the WWW through the Technology Transfer Network (TTN). Following signature, a copy of the proposed rule amendment will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: http://www.epa.gov/ttn/oarpg/. The TTN provides information and technology exchange in various areas of air pollution control.

Reports for Public Comment. We have prepared a summary memorandum covering the rationale for the proposed rule amendment. The memorandum is entitled: "Basis and Purpose for the Alternative Leak Detection and Repair (LDAR) Work Practice," and is in Docket ID No. EPA-HQ-OAR-2003-0199. See the preceding Docket section for docket information and availability.

Outline. The information presented in this preamble is organized as follows:

I. Background Information

A. What is the current LDAR work practice?

Numerous EPA air pollution control standards require specific work practices for LDAR. These practices require plant operators to periodically inspect designated equipment for leaks. The work practice currently employed requires the use of a monitor which meets the performance specifications of EPA Reference Method 21.

The monitor is a portable instrument that is used to detect leaks of volatile organic compounds (VOC) and/or hazardous air pollutants (HAP) at the leak interface of the

equipment component. The work practice requires periodic monitoring of the equipment, usually on a quarterly basis. A “leak” is generally defined under the current rules as 10,000 parts per million by volume (ppmv) of VOC and 500 ppmv of HAP, as measured by the monitor (i.e., the EPA Reference Method 21 instrument).

B. What are the current LDAR requirements?

U.S. refineries, chemical manufacturers, and other industries are required to identify leaks using EPA Reference Method 21 for processes and streams described in various subparts of 40 CFR parts 60, 61, 63 and 65, including, but not limited to: part 60, subparts A, Kb, VV, XX, DDD, GGG, KKK, QQQ, and WWW; part 61, subparts F, L, V, BB, and FF; part 63, subparts G, H, I, R, S, U, Y, CC, DD, EE, GG, HH, OO, PP, QQ, SS, TT, UU, VV, YY, GGG, HHH, III, JJJ, MMM, OOO, VVV, FFFF, and GGGGG; and part 65, subparts A, F, and G. Currently, covered facilities must periodically monitor each regulated component (e.g., pump, valve, connector, closed vent system, etc.) with an EPA Reference Method 21 instrument. The frequency of such monitoring may vary from each month to every 4 years depending on the subpart and the piece of equipment being monitored. If equipment is found to be leaking, the equipment is tagged and required to be repaired within a specified time.

The current LDAR work practice involves placing an EPA Reference Method 21 instrument probe at the leak interface (seal) of a component and registering a VOC and/or HAP concentration. We developed a correlation which relates the mass rate of VOC or HAP leaking from the component to the concentration registered by the instrument. EPA and some State agencies have established different concentration thresholds which define a leak. If the concentration exceeds the leak definition, then the component must be repaired. EPA's leak definition varies from 500 ppmv to 10,000 ppmv depending on the type of component and the specific subpart.

After the LDAR program has been used for a few periods, the number of leaks detected decreases because pre-existing leaks have been repaired and may not leak for extended periods of time. Although repair costs decrease as the number of leaks are reduced, the costs of conducting EPA Reference Method 21 monitoring remains constant, resulting in a decrease in cost-effectiveness.

C. What is the statutory basis for these requirements?

Current LDAR requirements are primarily applicable to sources through EPA work practice standards promulgated under Clean Air Act (CAA) section 111 (New Source Performance Standards (NSPS)) and section 112 (National Emission Standards for Hazardous Air Pollutants (NESHAP)).

These sections authorize EPA to promulgate work practice standards in lieu of numerical emission standards where "it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard" because the regulated pollutants "cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant . . . or [because] the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations." 42 U.S.C. 7412(h)(1),(2); see also 42 U.S.C. 7411(h)(1),(2).

In promulgating such standards, we are not required to mandate a single work practice applicable to all sources in a source category but may instead provide several AWP options. Indeed, the United States Court of Appeals for the District of Columbia Circuit has indicated that EPA may provide sources with multiple work practice compliance options if EPA demonstrates that at least one of these options is cost effective and "expressly provides for the alternative in the standard." Arteva Specialties S.R.R.L., d/b/a KoSa v. EPA, 323 F.3d 1088, 1092 (D.C. Cir. 2003).

D. How can the existing requirements be changed?

Once promulgated, EPA retains the authority to provide additional work practice alternatives. Such authority exists under EPA's general authority to review and amend its regulations as appropriate, e.g., 42 U.S.C. 7411(b)(1)(B),

42 U.S.C. 7412(d)(6).

E. Why is EPA proposing to consider an alternative LDAR work practice?

On November 17, 2000, the American Petroleum Institute (API) requested a meeting with EPA to initiate discussion regarding approval of an alternative LDAR work practice based on the proposed work practice's "equivalency" with the current EPA Reference Method 21 based LDAR work practice. While the request did not indicate if it was invoking EPA's general rulemaking authority or the AWP provisions of CAA sections 111 and 112, EPA has treated the request as being for a general rulemaking because API's request was not specific to any single source category.

API's request was based upon ongoing studies involving API, EPA, and the Department of Energy designed to provide guidance for conducting LDAR programs in a more cost-effective manner. These studies began with a 1997 study conducted by API. It evaluated data collected under the LDAR program by seven Los Angeles, California, refineries in the South Coast Air Quality Management District (SCAQMD). The data was examined to help determine: (1) the design and operational characteristics that influence leaks from equipment; and (2) whether a sub-population of chronic leakers existed which could be the primary focus of a more cost-effective LDAR program. SCAQMD requires refineries to

screen all accessible components quarterly (valves, connectors etc.) and defines a leak as equal to, or greater than, 1,000 ppmv as registered with an EPA Reference Method 21 instrument.

The API study analyzed 11.5 million LDAR program monitoring values collected over 5 ½ years, 1991 to mid-1996. The data were analyzed to determine if certain component designs or component applications (e.g., gate valves vs. globe valves, different process units, or different frequencies of actuation) are more susceptible to leaks. The refinery screening study showed that about 0.13 percent of components contribute greater than 90 percent of controllable fugitive emissions. This small population of large leakers is random over time, type of component, and process unit. Thus, no clear criteria exist for predicting which components are likely to leak.

Consequently, the refining industry began to analyze alternative work practices/technologies to find leaking equipment more efficiently. The outgrowth of this analysis was the development of a work practice based on optical gas imaging.

F. How does the new optical gas imaging technology work?

Currently available optical gas imaging technologies fall into two general classes, active and passive. The active type uses a laser beam that is reflected by the

background. The attenuation of the beam passing through a hydrocarbon cloud provides the optical image. The passive type uses ambient illumination to detect the difference in heat radiance of the hydrocarbon cloud.

The principle of operation of the active system is the production of an optical image by reflected (backscattered) laser light, where the laser wavelength is such that it is strongly absorbed by the gas of interest. The system illuminates the scene with infrared light and a video camera-type scanner picks up the backscattered infrared light. The camera converts this backscattered infrared light to an electronic signal, which is displayed in real-time as an image. Since the scanner is only sensitive to illumination from the infrared light source and not the sun, the camera is capable of displaying an image in either day or night conditions.

The passive instrument has a tuned optical lens, which is in some respects like “night-vision” glasses. It selects and displays a video image of light of a particular frequency range and filters out the light outside of that frequency range. In one design, by superimposing the filtered light (at a frequency that displays VOC gas) on a normal video screen, the instrument (or camera) displays the VOC cloud in real time in relationship to the surrounding process equipment. The operator can see a plume of VOC gas

emanating from a leak.

G. How were emission reductions estimated for LDAR programs originally?

The most accurate technique for measuring mass emissions from leaking equipment requires the “bagging,” or physical isolation, of each component leak and subsequent measurement. This technique is estimated to cost approximately $500 per component. Facilities may have as many as a million components, making bagging each component impractical and prohibitively expensive.

The original EPA studies correlated EPA Reference Method 21 measurement values (i.e., screening values) with a mass emissions rate from limited bagging results as a way to estimate emissions from the total population of components. The resulting correlation equations enable the calculation of emissions from the total population of equipment by plugging all measured EPA Reference Method 21 screening values into those equations. EPA used the original screening values from uncontrolled plants to determine both the amount of uncontrolled emissions and which leaks require repair. The original studies showed that mass emissions associated with EPA Reference Method 21 screening values equal to, or greater than, 10,000 ppmv represented 95 percent of the total emissions, but involved only 5 percent of all the equipment. Based on the correlation approach,

the 10,000 ppmv leak definition, in conjunction with the quarterly periodic detection requirement, reduces emissions by approximately 70 to 80 percent.

Because the cost of direct emission measurement, i.e., bagging each component, is so expensive, the correlation approach is the only cost-effective way to estimate emissions. However, there is some uncertainty associated with any emission estimates based on using the correlation equations. These uncertainties arise because the correlation equations do not take into account the inherent variability of equipment leak emissions recorded through direct periodic measurements. We are unable to determine whether leak rates are constant or intermittent, how effective repair is, and whether leaks are chronic or random.

Also, the calculation of emission estimates from leaking equipment using correlation equations cannot be used with instruments other than the EPA Reference Method 21 instruments, i.e., organic vapor analyzers. In other words, the correlation equations and emission factors are directly linked to EPA Reference Method 21. Therefore, it was necessary to develop a methodology specifically for the purpose of comparing existing and alternative work practices.

H. <u>What did the Agency do to compare existing and proposed</u>

work practice effectiveness?

Any new work practice must be as equally protective of the environment as the current work practice. Because it is too costly to measure mass emissions directly, EPA developed a computer model that allows the simulation of leaks as well as the effect of various leak definitions and monitoring frequencies. This model performs a side by side comparison of alternative work practices to the current EPA Reference Method 21 based work practice.

1. How does the model work? The model's four basic steps can be summarized as follows:

- Select an uncontrolled population of process equipment components with known EPA Reference Method 21 field data which has been used to estimate mass emission rates,

- Simulate each work practice for each equipment component to determine the work practice's response to mass emission leak rates,

- Identify leakers by comparing each work practice's response to the various leak definitions. Reduce emissions from detected leakers to simulate the effect of being repaired, and

- Calculate total emissions for both the current work practice and alternative work practices.

2. What are the issues in developing the comparative

work practices model?

- To make an equivalency determination of any AWP requires modeling of an uncontrolled facility. The control effectiveness of the current EPA Reference Method 21 based work practice was based on facility leak rates dating from the 1970s. EPA Reference Method 21 plant emissions data from the 1970s provided the basis for the regulatory requirements for refinery and chemical plants at that time. These facilities were uncontrolled; that is, these facilities did not have LDAR programs in place at the time. The original uncontrolled baseline EPA Reference Method 21 data used to develop the existing work practice would have been appropriate to make the comparison. Unfortunately, this 25-year-old database is no longer available. The only uncontrolled data available were from natural gas processing plants which were used in the modeled comparison. These plants were screened with EPA Reference Method 21 instruments in the early 1990s as part of an EPA/industry effort to develop emission factors for the refinery and gas processing industries.

- There is a large variance in EPA Reference Method 21 screening values for a given mass emission rate. That is, the empirical data show that the EPA Reference Method 21 instrument will register different ppmv concentrations for the same mass emission leak.

Based on a 1993 petroleum industry study, EPA developed a statistical relationship between measured (bagged) mass emissions and the associated measured EPA Reference Method 21 screening values. The study contained a database of 337 paired values (i.e., mass emissions rate (kg/hr) and screening value (ppmv) for each valve). This statistical relationship established the probability of registering an EPA Reference Method 21 screening value for a given range of mass emissions. The statistical relationship was then used to simulate detection of leaks by the EPA Reference Method 21 work practice in the computer model. The model selects a screening value for the current EPA Reference Method 21 work practice for each mass emission rate associated with the population of uncontrolled equipment. The modeling program compares the screening value of EPA Reference Method 21 to various leak definitions to determine if a leak would be detected. Similarly, the model assigns a mass rate detection limit to the AWP. For each component with a leak at or above the assigned mass detection limit, the program specifies detection by the AWP.

-The model must also consider the frequency of applying the work practice. The emission control effectiveness of any work practice is a function of both its ability to detect leakage and the frequency of monitoring. An equivalent work practice may require more frequent

monitoring, depending on its mass rate threshold for detecting leaks. A work practice which detects leaks at a higher mass rate than the current work practice would need to be practiced more frequently than the current periodic requirement of once a quarter. A more frequent monitoring requirement becomes necessary because higher mass emissions reductions from large leaks, found earlier, are offset to some degree by smaller leaks which go undetected.

- The AWP mass detection limit and monitoring frequency were varied and modeled to determine the equivalent mass emission reduction to the existing work practice. For both the existing work practice and the AWP, the model then reduces emissions from components found leaking to simulate emissions from repaired components. Finally, total emissions from the AWP are compared to emissions from the current work practice. Modeling results showed a work practice repeated bimonthly with a detection limit of 60 grams per hour (g/hr) range was equivalent to the existing work practice. The model also showed a work practice repeated semi-quarterly with a detection limit of 85 g/hr range was equivalent to the existing work practice.

The model generated different detection limits for the 500 and 10,000 ppmv thresholds in existing rules. The proposed rule reflects the mass detection limit for 500

ppmv, i.e., the more stringent limit which provides equivalency for both leak definitions.

I. How well does the new technology work?

Lab and field data demonstrate that the optical gas imaging technology can routinely detect leaks at a mass rate of approximately 60 g/hr. The imaging technology has negligible variance associated with its ability to detect leaks of 60 g/hr.

Five laboratory and field tests have been conducted using optical gas imaging for fugitive emissions monitoring at both refineries and petrochemical plants. Each test used at least one of the imager types: CO_2 laser imager, “fiber” laser imager, and passive IR imager. In each case, the imager was successfully tested at chemical plants or refineries.

Based on the model used to compare existing and proposed work practice effectiveness, a leak mass rate of 60 g/hr was determined as the equivalent for an AWP. The tests conducted on the optical gas imaging technology showed that the imagers could detect a leak with a mass rate of as low as 1 g/hr.

Several evaluations have been conducted to demonstrate the ability of the optical gas imaging technology to detect a range of VOC under typical plant operating conditions. The technology currently available has been shown to detect

propylene, ethylene, formaldehyde, acetaldehyde, isoprene, all butanes, 1,3 butadiene, toluene, all pentenes, all pentanes, all trimethybenzenes, all xylenes, all ethyletoluenes, and all hexenes.

In one test, a side-by-side comparison of EPA Reference Method 21 and the optical gas imaging device was conducted. This study took place at two different plants and tested four different imagers: two passive IR imagers, long-wave BAGI imager, and mid-wave BAGI imager. A total of 66 leaks were discovered at the two sites. The imagers detected 31 leaks and the EPA Reference Method 21 instrument detected 49 leaks. The imagers and the EPA Reference Method 21 instrument found 14 of the same leaks. Neither method for detecting leaks discovered all leaking equipment at the test sites. Of the leaks discovered by the imagers, leak mass rates ranged between 1 g/hr and over 100 g/hr. The imagers did detect all leaks with leak mass rates greater than 60 g/hr, thus supporting the conclusion that the optical gas imaging device will detect leaks above the 60 g/hr threshold.

J. How does the proposed voluntary work practice promote development of innovative technology?

Several field and laboratory studies have been conducted to demonstrate the use of optical gas imaging for fugitive emissions monitoring. In both the laboratory and

field tests, the technology has been shown to find leaks. However, some of these laboratory and field tested units are prototypes which are not yet commercially available. Vendors will only manufacture the technology if there is a demand for the equipment. Our current regulations do not allow companies to use the new technology. Thus, we propose to add amendatory language to allow companies to elect an AWP based on the new technology. Allowing this AWP will, therefore, encourage development of this technology because it should open the market driven by regulatory requirements to optical gas imaging equipment.

K. Request for comments

We are requesting comment on the need for clarifying language in individual subparts, the use of optical gas imaging technology for monitoring closed vent systems, and opportunities for reduced recordkeeping and reporting burden.

We are contemplating incorporating the appropriate rule language for the AWP into the General Provisions of 40 CFR parts 60, 61, 63, and 65. The new work practice requirements are nearly identical to the existing work practice requirements with the exception of the instrument used to detect the leaks. Therefore, rather than amending all of the applicable subparts, we are considering amending only the General Provision language of each part. These

amendments would be intended to allow for the use of the optical gas imaging technology. Facilities choosing to demonstrate compliance with LDAR requirements by using the AWP would continue to comply with all the non-instrumentation requirements of the existing subparts. We are requesting public comment regarding whether the proposed amendatory language provides sufficient legal authority for a source to utilize the AWP for complying with the LDAR requirements.

Additionally, we are requesting public comment on whether the amendatory language clearly explains what requirements a source must satisfy if using the AWP. Current subparts language includes many requirements specific to the EPA Reference Method 21 based work practice, specifically to the Method 21 instrument itself. Although the specific EPA Reference Method 21 requirements would not be applicable to a source using the AWP, that language may confuse a source regarding what requirements would apply. We are, therefore, seeking comment on whether the amendatory language provided in today’s notice sufficiently enables a source to identify the applicable requirements for using the AWP, or whether it is necessary to amend all of the existing subparts to clarify which of the existing requirements apply only to the EPA Reference Method 21 based work practice.

Current requirements specify annual monitoring of closed vent systems with an EPA Reference Method 21 instrument. Vent systems used to route emissions to control devices are required to be closed. The original ppmv threshold was set at 5 percent of the leak definition (10,000 ppmv) or 500 ppmv. This threshold has never been changed even though the leak definition for many standards was lowered to 500 ppmv.

The modeled results show a similar mass limit threshold for both 500 and 10,000 ppmv. This suggests the optical gas imaging technology as specified for LDAR could be used to satisfy the closed vent system monitoring requirements. We could use the same approach we used originally, that is, use 5 percent of the new threshold, i.e., 3 g/hr as the basis for monitoring closed vent systems. We are soliciting comment on the appropriateness of also using the optical gas imaging technology for closed vent systems.

Facilities subject to current rules will, for the purpose of the alternative LDAR work practice, still rely on the current rule language for all recordkeeping and reporting requirements which are not specific to the use of the EPA Reference Method 21 instrument. We are soliciting comment on alternative recordkeeping and reporting requirements which may be feasible with the optical gas imaging technology.

II. Summary of the Regulatory Action

The proposed AWP allows owners or operators to identify leaking equipment using an optical gas imaging instrument instead of a leak monitor prescribed in 40 CFR part 60, Appendix A-7. The new work practice requirements are identical to the existing work practice requirements except for those requirements which are directly or indirectly associated with the instrument used to detect the leaks. For example, owners or operators are still subject to the existing difficult to and unsafe to monitor, repair, recordkeeping, and reporting requirements. If a leak is identified using the optical gas imaging instrument, then the leak must be re-screened after repair using the imaging instrument.

Owners or operators must use an optical gas imaging instrument capable of imaging compounds in the streams that are regulated by the applicable rule. The imaging instrument must provide the operator with an image of the leak and the leak source.

Prior to using the optical gas imaging instrument, owners and operators must determine the mass flow rate that the imaging instrument will be required to image. The optical gas imaging instrument may either meet a minimum detection sensitivity mass flow rate (provided in the proposed AWP), or owners or operators may calculate the mass

flow rate for their process by prorating a standard detection sensitivity emission rate (provided in the proposed AWP) using equations provided in the amendatory language. If the owner or operator chooses to prorate the standard detection sensitivity, they must conduct an engineering analysis to identify the stream containing the lowest mass fraction of chemicals that have to be identified as detectable.

Owners or operators must conduct a daily instrument check to confirm that the optical gas imaging equipment is able to detect leaks at the emission rate specified in the amendatory language (or calculated by the owner or operator). The instrument check consists of using the optical gas imaging instrument to view the mass flow rate required to be met exiting a gas cylinder.

Owners or operators using the AWP must keep records of the detection sensitivity level used for the optical gas imaging instrument; the analysis to determine the stream containing the lowest mass fraction of detectable chemicals; the basis of the mass fraction emission rate calculation; documentation of the daily instrument check (either with the video recording device, electronically, or written in a log book); and the video record of the leak survey.

III. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), EPA must determine whether a regulation is "significant" and, therefore, subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Executive Order defines “significant regulatory action” as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal government communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or

(4) raise novel or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Because the proposed amendments are voluntary and expected to reduce burden, it has been determined that the proposed amendment is not a "significant regulatory action" under the terms of Executive Order 12866 and is, therefore, not subject to OMB review.

B. Paperwork Reduction Act

This action does not impose any new information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. et seq. Today's proposed decision provides plant operators with an alternative method for identifying equipment leaks but does not change the recordkeeping and reporting requirements in the various subparts of CFR parts 60, 61, 63 and 65. However, EPA anticipates that this proposed action will change the burden estimates developed and approved for the existing national emission standards by reducing the labor hours necessary to identify equipment leaks.

An ICR document (EPA ICR No. 2210.01) was prepared for this action to estimate the costs associated with reading and understanding the proposed alternatives, purchasing an optical imaging instrument, and initial training of plant personnel. The ICR has been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The annual public burden for this collection of information (averaged over the first 3 years after the effective date of the final rule) is estimated to total 3,027 labor hours per year and a total annual cost of $2,260,048. EPA has established a public docket for this action (Docket ID number EPA-HQ-OAR-2003-0199) which can be found at www.regulations.gov. The ICR

for this proposal is included in the public docket.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The ICR for this proposal will be submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The OMB control numbers for the ICRs developed for the existing national emission regulations under CFR parts 60, 61, 63 and 65 are listed in 40 CFR part 9 and 48 CFR chapter 15.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires

an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's proposed amendment on small entities, small entity is defined as: (1) a small business whose parent company has fewer than 100 to 1,500 employees, or a maximum of $5 million to $18.5 million in revenues, depending on the size definition for the affected North American Industry Classification System (NAICS) code; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. It should be noted that the small business definition applied to each industry by NAICS code is that listed in the Small Business Administration (SBA) size standards (13 CFR part 121).

After considering the economic impact of today's proposed amendment on small entities, I certify that this

action will not have a significant impact on a substantial number of small entities. Today's proposed amendment imposes no additional burden on facilities impacted by existing EPA regulations because this action allows for an AWP to existing requirements and is voluntary. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures by State, local, and tribal governments, in aggregate, or by the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of

section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation of why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that today's proposed amendment does not contain a Federal mandate that may result in expenditures of $100 million or more to State, local, and tribal governments in the aggregate, or to the private sector in any 1 year. Therefore, today's proposed amendment is not subject to the requirements of sections 202 and 205 of the UMRA. In addition, today's proposed amendment does not significantly or uniquely affect small governments

because it contains no requirements that apply to such governments or impose obligations upon them. Therefore, today's proposed decision is not subject to section 203 of the UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." The phrase "policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Today's proposed amendment does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Thus, the requirements of the Executive Order do not apply to today's proposed amendment.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." The phrase "policies that have tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes."

Today's proposed amendment does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to today's proposed amendment.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order

12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, EPA must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Today's proposed amendment is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, and because the Agency does not have reason to believe the environmental health or safety risk addressed by this action presents a disproportionate risk to children.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

Today's proposed amendment is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Further, we have concluded that today's proposed amendment is not likely to have any adverse energy impacts.

I. National Technology Transfer and Advancement Act

Under section 12(d) of the National Technology Transfer

and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, all Federal agencies are required to use voluntary consensus standards (VCS) in their regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. The NTTAA requires Federal agencies to provide Congress, through annual reports to OMB, with explanations when the agency does not use available and applicable VCS.

Today's proposed amendment does not involve technical standards. Therefore, the requirements of the NTTAA are not applicable.

List of Subjects for 40 CFR Part 60

Environmental protection, Administrative practice and procedures, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements, Equipment leaks, and Alternative monitoring.

_____
Dated:

_____
Stephen L. Johnson
Administrator.

For reasons set out in the preamble, title 40, chapter I, part 60 of the Code of Federal Regulations is proposed to be amended as follows:

Part 60-[Amended]

1. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

2. Section 60.2 is amended by adding the definitions for “Engineering analysis,” “Gas imaging instrument,” “Imaging,” and “Stream” in alphabetical order to read as follows:

* * * *

Engineering analysis means the assessment of the imaging technology’s capability to detect leaks at the specified sensitivity level for each component.

* * * * *

Imaging means making visible on a screen an emission plume which is otherwise invisible to the naked eye.

* * * * *

Optical gas imaging instrument means an instrument which makes visible on a screen an emission plume which is otherwise invisible to the naked eye.

* * * * *

Stream means gasoline or any other stream for which no constituent exceeds one percent of the stream by weight.

* * * * *

3. Section 60.18 is amended by:

a. The section heading is revised;

b. revising paragraph (a) introductory text; and

c. adding paragraphs (g), (h), and (i) to read as follows:

§60.18 General Control Device and Work Practice Requirements.

(a) Introduction. This section contains requirements for control devices used to comply with applicable subparts of parts 60 and 61. The requirements are here for administrative convenience and only apply to facilities covered by subparts referring to this section. This section also contains requirements for an alternative work practice used to identify leaking equipment. This alternative is placed here for administrative convenience and is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of leaking equipment with a 40 CFR part 60, Appendix A-7, Method 21 monitor.

* * * * *

(g) Alternative Work Practice for Monitoring Equipment for Leaks. Paragraphs (h) and (i) of this section apply to all leaking equipment.

(h) This section contains an alternative work practice used to identify leaking equipment. Specifically, this section allows a source to use an optical gas imaging instrument as described in paragraph (i)(1) instead of a 40 CFR part 60, Appendix A-7, Method 21 monitor. This alternative is

available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of leaking equipment with a 40 CFR part 60, Appendix A-7, Method 21 monitor.

(1) An owner or operator of an affected source subject to CFR parts 60, 61, 63, or 65 can choose to comply with the requirements in paragraph (i) of this section instead of using the 40 CFR part 60, Appendix A-7, Method 21 monitor to identify leaking components.

(2) Any leak identified in paragraph(i)(3) of this section must be tagged for repair.

(3) Re-screening after repairing a leaking component must be conducted using the same method used to identify the leaking component.

(i) Owners or operators of an affected source who choose to use the alternative work practice shall comply with the requirements of paragraphs (i)(1) through (i)(4) of this section.

(1) Instrument Specifications. The optical gas imaging instrument must meet the following requirements:

(i) Image the compounds in the streams for which it will be used to monitor leaks, and

(ii) Provide the operator with an image of the potential leak points for a component and the regulated species at the standard detection

sensitivity level selected from Table A, within the distance to be used in the daily instrument check of paragraph (i)(2) of this section, provided the instrument has been properly adjusted to the manufacturer's prescribed settings.

(2) Daily Instrument Check. Daily prior to beginning any leak monitoring work you must test the optical gas imaging instrument at the mass flow rate determined in paragraph(i)(2)(i) of this section in accordance with the procedure specified in paragraphs (i)(2)(ii) through (i)(2)(iv) of this section, unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph(i)(2)(v) of this section.

(i) The mass flow rate to be used in the daily instrument check shall be determined in accordance with either paragraphs (i)(2)(i)(A) or (i)(2)(i)(B) of this section.

(A) Calculate a mass flow rate using paragraphs (i)(2)(i)(A)(1) and (i)(2)(i)(A)(2) of this section.

(1) For a specified population of components to be imaged by the instrument, perform an engineering analysis to identify the stream containing the lowest mass fraction of

chemicals that have to be identified as detectable, within the distance to be used in paragraph (i)(2)(iv) of this section, at or below the standard detection sensitivity level.

(2) Multiply the standard detection sensitivity level in Table A by the mass fraction of detectable chemicals from the stream identified in paragraph (i)(2)(i)(A)(1) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation.

$$E_{dic} = (E_{sds})\sum_{i=1}^{k} x_i$$

Where:

E_{dic} = Mass flow rate for the daily instrument check, grams per hour

x_i = Mass fraction of detectable chemical(s) i seen by the optical gas imaging instrument, within the distance to be used in paragraph(i)(2)(iv) of this section, at or below the standard detection sensitivity level, Esds.

E_{sds} = Standard detection sensitivity from Table A, grams per hour

k = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.

(B) Use the minimum detection sensitivity level specified in Table A as the mass flow rate for the daily instrument check. The calculations specified in paragraph (i)(2)(i)(A) of this section are not required if the daily instrument check is performed at the minimum detection sensitivity level.

(ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions.

(iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.

(iv) Establish a mass flow rate by using the following procedures:

(A) Position a cylinder of the gas in a secured upright position.

(B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter.

(C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate specified in paragraph (i)(1) of this section while observing the gas flow through the optical gas imaging instrument viewfinder. When an image of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.

(v) If you wish to use an alternative method to demonstrate daily instrument checks, then you must apply to the Administrator for approval of the alternative under §60.13 (i).

(3) Leak Survey Procedure. Operate the optical gas imaging equipment to image every regulated component in accordance with the instrument manufacturer's operating parameters.

(4) Recordkeeping. You must keep the following records:

(i) The detection sensitivity level used for the optical gas imaging instrument.

(ii) The analysis of the component population to determine the stream containing the lowest mass fraction of detectable chemicals in paragraph (i)(2)(i)(A)(1) of this section.

(iii) The technical basis for the mass fraction used

in the equation in paragraph (i)(2)(i)(A)(2) of this section.

(iv) The daily instrument check. You may document the daily instrument check using either a video recording device, electronic recordkeeping, or written entry into a log book.

(v) Recordkeeping requirements in the applicable subpart. A video record must be used to document the leak survey results.

Table A. Detection Sensitivity Levels (grams per hour)

Monitoring Frequency	Monitoring Frequency (days)	Detection Sensitivity Level (grams per hour)	
		Standard	Minimum
Bi-Monthly	60	60	6.0
Semi-Quarterly	45	85	8.5
Monthly	30	100	10.0